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EDUCATIONAL APPARATUS

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This invention relates to audio visual teaching machines adapted especially for children, and more particularly to such teaching machines wherein the pupil triggers the machine into its successive operations and responses by touching a conductive selector pencil to areas of a cover glass overlying the respective items of information shown to the pupil.

In the present description the phrase "items of information" is utilized to include the respective lower and upper case letters, numbers, signs and symbols which appear on the keys of a typewriter, and also words, phrases, sentences, pictures, etc.

In the present machine, programmed visual information is presented to the pupil and audio information related to the visual information is reproduced by a reproducing machine. The audio information as to each item may be presented either in the form of instructions or questions to be followed by the pupil pointing out the correct visual item or, alternatively, the pupil may be called upon to point out the successive items of information after which the machine will pronounce and/or explain the respective items. In either case, the manual selector pencil is disabled while the reproducing machine is in operation so as to enforce a synchronization of the audio information with the selected visual items. When the reproducing machine has completed a particular audio operation it is automatically stopped and the selector pencil is reactivated to enable the pupil to point out a next item in the programmed material. These procedures have been found to be highly successful in teaching children as from three to five years of age to recognize, pronounce and learn the meaning of the various keyboard characters and of pictures, words and sentences as well as the answers to multiple choice questions, etc.

The broad use in a teaching machine of a selector pencil in the manner herein described is disclosed and claimed in the pending application Ser. No. 487,738 of Richard Kobler, filed Sept. 16, 1965, and entitled, "Educational Apparatus," now Patent No. 3,363,330, dated Jan. 16, 1968.

A special feature of the present invention resides in the use of a cover glass having transparent conductive areas on the top surface thereof prearranged in relation to the spatial disposition of the exhibited items for completing respective control circuits to trigger the machine into its successive operations in response to the pupil touching the conductive selector pencil to the areas of the cover glass overlying the respective items. Such cover glass with prearranged invisible conductive areas provides in conjunction with the manual selector pencil a highly simple and effective control means for triggering a teaching machine of the responsive environmental type into its successive operations.

A further special feature of the present invention resides in providing a responsive environment type of teaching machine with a fixed encoding through use of a stepping relay to enforce a selection of the items in a working line in a given sequence. As will appear, the selection may be on a linear basis wherein the pupil selects the items in succession proceeding along the working line or the selection may be scrambled wherein the items are selected by jumping back and forth along the working line.

A still further feature of the invention resides in pro-

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viding a coding means utilizing a stepping relay of the self-running type and in providing code marks or spots on the sheet bearing the visual items for stopping the relay. In this way any one or more positions can be skipped in the working line whether the coding is on a linear or scrambled basis to provide a greater flexibility in programming the information to be presented to the pupil.

Objects of the invention are to provide a versatile teaching machine of the responsive environment type which is of a simple and economical design enabling this type of teaching machine to be sold at a much lower cost than has been heretofore possible.

Another object is to provide the exhibitor of such teaching machine with a transparent cover glass having thereon invisible conductive areas for the respective items of information, which are activated in a given sequence to trigger the machine into successive operations when the respective areas are touched by a conductive selector device in said given sequence.

Another object is to code such teaching machine to respond to the items in a given sequence with the use of a stepping relay.

Another object is to code such teaching machine by means of a stepping relay of the self-running type which is stopped at particular items of information only when a respective code mark has been placed on the sheet bearing the items.

Another object is to provide an audio visual teaching machine wherein the cover glass for the exhibitor is provided with invisible conductive surface areas to be contacted by a conductive selector device to trigger the machine into its successive operations, and wherein the sheet bearing the visual items of information is provided with conductive code spots to control a self-operating coding means for activating the conductive areas in a predetermined sequence in which the items are to be selected by the pupil.

These and other objects and features of the invention will be apparent from the following description and the appended claims.

In the description of my invention reference is had to the accompanying drawings, of which:

FIGURE 1 is a perspective view of a teaching machine according to the invention;

FIGURE 1a is a view of the manual selector pencil;

FIGURE 2 is a view similar to FIGURE 1 but with a portion of the cabinet broken away to show the sheet mounting mechanism;

FIGURE 3 shows a sheet of programmed instruction by way of illustrative example;

FIGURE 4 is a view through the front window of the teaching machine showing the above sheet of programmed instruction positioned so that line 2 thereof is in the working line position;

FIGURE 5 is a schematic view of circuits and portions of the operating mechanism according to a first embodiment of the invention;

FIGURE 6 shows a sheet of programmed instruction for a second embodiment of my invention wherein the dots in dotted lines indicate conductive code spots on the under side of the sheet;

FIGURE 7 is a partial view to enlarge scale of the exhibit window of the second embodiment; and

FIGURE 8 is a schematic view of circuits and mechanism according to the second embodiment.

The present teaching machine may have a rectangular case 10 provided with a base 10a and a hinged cover 10b. The cover 10b is provided with a sloping front wall 11 having therein a window opening 12 through which a pupil can see the programmed visual material. The window is closed by a transparent cover glass indicated